

Patent
Attorney Docket No.: P50-0082

IN THE CLAIMS

The following is a replacement claim set.

1. (currently amended) A tubeless pneumatic tire, comprising:

a puncture sealing composition for a tubeless pneumatic tire covering at least a portion of an interior surface of the tire, the puncture sealing composition comprising a fiber-free blend of:

A. a minor proportion by weight of a low molecular weight liquid rubber with a molecular weight less than about 50,000 elastomer in admixture with a tackifying or plasticizing substance, the liquid rubber having a Brookfield viscosity at 150 °F of between 20,000 and 2,000,000 cps, and

B. a major proportion by weight of a high molecular weight solid elastomer with a molecular weight greater than about 50,000 having a Mooney viscosity of from 20 to 160 ML-4 at 212 °F, and a crosslinking agent for the elastomers in amount effective to partially crosslink the elastomers to an extent sufficient to prevent the blend from flowing at elevated temperatures and centrifugal forces encountered in the tire in use, the blend having in [[the]] a partially crosslinked state sufficient adhesion and conformability to function as a sealant in the tire,

wherein the blend includes an [[the]] amount of (A) being from more than between [[50]] 10% [[to]] and [[10]] 50% by weight and [[the]] an amount of (B) being correspondingly from less than between 50% [[to]] and 90% by weight, based on the combined weights of (A) and (B), the said low molecular weight elastomer being a liquid rubber having a Brookfield viscosity at 150 degree F of from 20,000 to 2,000,000 cps and the said high molecular weight elastomer having a Mooney viscosity of from 20 to 160 ML-4 at 212 degree F, the said crosslinking agent being selected from the group consisting of the following and [[,]] present in the amounts recited:

from more than 0.5 to 2.0 parts of sulfur or sulfur yielding curative;

from more than 0.5 to 2.0 parts of quinoid curative;

from 0.1 to 1.0 part of radical generating curative;

from 2 to 10 parts of polyisocyanate curative; and

from 2 to 10 parts of tetrahydrocarbyl titanate ester curative;

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~~the said parts of crosslinking agent being by weight based on 100 parts of the combined weight of the two elastomers, wherein the gel content of the blend in the partially crosslinked state being from is between 15 [[to]] and 60% by weight of the blend, as measured in toluene at room temperature, and wherein the peak Mooney viscosity of the blend in the partially crosslinked state being from is between 15 [[to]] and 55 ML at 150.degrees F °F; and~~

C. ground rubber from used tires in [[the]] ~~an amount of up to between greater than 0 and 5 percent by weight of the sealant composition.~~

2. (currently amended) ~~The tire of claim 1, wherein A puncture sealing composition as in claim 1 in which the liquid rubber is heat depolymerized natural rubber.~~

3. (currently amended) ~~The tire of claim 1, wherein A puncture sealing composition as in claim 1 in which the low molecular weight liquid rubber elastomer is selected from the group consisting of liquid cis-polyisoprene, liquid polybutadiene, liquid polybutene, liquid ethylene-propylene-non-conjugated diene terpolymer rubber, and liquid isobutylene-isoprene copolymer rubber.~~

4. (currently amended) ~~The tire of claim 1, wherein A puncture sealing composition as in claim 1 in which the high molecular weight elastomer is selected from the group consisting of conjugated diolefin homopolymer rubbers, copolymers of a major proportion of a conjugated diolefin with a minor proportion of a copolymerizable monoethylenically unsaturated monomer, copolymers of isobutylene with a small amount of isoprene, ethylene-propylene non-conjugated diene terpolymers, and saturated elastomers polyisoprene, wherein the polyisoprene is natural rubber, synthetic rubber or combinations thereof.~~

5. (currently amended) ~~The tire of claim 1, wherein A puncture sealing composition as in claim 1 in which (A) is liquid heat-depolymerized natural rubber in admixture with a resin prepared from the reaction of a mineral oil purification residue [[with]] and formaldehyde and with nitric acid catalyst and (B) is solid cis-polyisoprene rubber.~~

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6. (currently amended) A puncture sealing composition as in claim 1 in which the tackifying or plasticizing substance is selected from the group consisting of resin esters, aliphatic petroleum hydrocarbon resins, polyterpene resins, styrene resins, dicyclopentadiene resins, and resins prepared from the reaction of a mineral oil purification residue with formaldehyde and with a nitric acid catalyst.

7-10. (cancelled)

11. (currently amended) The tire of claim 1, wherein The puncture sealing composition of claim 1, wherein the ground rubber is 40 mesh or finer.

12. (cancelled)

13. (new) The tire of claim 1, wherein the crosslinking agent is selected from the group consisting of the following in the amounts recited:

from more than 0.5 to 2.0 parts of sulfur or sulfur-yielding curative;

from more than 0.5 to 2.0 parts of quinoid curative;

from 0.1 to 1.0 part of radical generating curative;

from 2 to 10 parts of polyisocyanate curative; and

from 2 to 10 parts of tetrahydrocarbyl titanate ester curative, wherein the parts of crosslinking agent are parts by weight based on 100 parts of the combined weight of the two elastomers.

14. (new) The tire of claim 1, wherein the crosslinking agent is from 2 to 10 parts of tetrahydrocarbyl titanate ester curative, wherein the parts of crosslinking agent are parts by weight based on 100 parts of the combined weight of the two elastomers.

15. (new) The tire of claim 1, wherein the ground rubber is not subjected to a surface activation treatment.

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16. (new) A method for applying a puncture-sealant composition to a tubeless pneumatic tire, the method comprising:

preparing the puncture-sealant composition of claim 1; and

applying the prepared puncture-sealant composition to at least a portion of an interior surface of the tire.

17. (new) The method of claim 16, further comprising:

preparing a solvent cement comprising the puncture-sealant material; and

applying the solvent cement to the interior of the tire